

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s) : Cohen-Solal
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For : Picture-in-Picture Repositioning and/or Resizing Based on Speech and Gesture Control
Group Art Unit : 2629
Examiner : Kent Wu Chang

**APPEAL BRIEF
On Appeal from Group Art Unit 2629**

Date: January 19, 2007

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I. REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., the assignee of record.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

- a) Claims 1-18 and 20-24 stand finally rejected.
- b) Claim 19 is cancelled.

IV. STATUS OF AMENDMENTS

No amendment has been filed subsequent to final rejection of August 23, 2006.

The claims listed in section "VIII Claims Appendix" of this Appeal Brief correspond to the claims submitted and entered in Appellant's response/amendment of June 14, 2006 and are the claims on appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present claimed invention relates to a video display device (Fig. 1, page 5, line 11 to page 6, line 2). The video display device includes a display configured to display a primary image and a picture-in-picture image (PIP) overlaying the primary image (Fig. 1, 110, page 5, line 11 to page 6, line 2); and a processor operatively coupled to the display (Fig. 1, 120, page 5, line 11 to page 6, line 2) and configured to receive a first video data stream for the primary

image, to receive a second video data stream for the PIP (Fig. 1, page 5, line 11 to page 7, line 8), to recognize an audio command related to a PIP display characteristic, the processor, upon recognizing the audio command, activates an image acquisition component that is configured to recognize a user hand gesture related to manipulating the PIP display characteristic (Figs. 1-3, page 8, lines 1-13), the processor manipulates the PIP display characteristic according to the audio command and the hand gesture (Figs. 1-3, page 9, line 14 to page 10, line 11).

The present claimed invention also relates to a method of manipulating a display characteristic of a picture-in-picture display (PIP) overlaying a primary display (Figs. 2 & 3). The method includes receiving an audio command from a user (Fig. 2, 205); determining whether the received audio command is one of a plurality of recognized audio commands (Fig. 2, 210); activating an image acquisition component upon determining the received audio command as recognized (Fig. 2, 230); receiving a hand gesture from a user (Fig. 2, 240); determining whether the hand gesture of the user is one of a plurality of recognized hand gestures (Fig. 2, 240); and manipulating the display characteristic upon determining the received hand gesture as recognized (Fig. 2, 270), wherein the display characteristic is manipulated according to the audio command and the hand gesture.

The present claimed invention also relates to a program segment stored on a processor readable medium (page 15, lines 1-15) for manipulating a display characteristic of a picture-in-picture display (PIP) overlaying a primary display (Figs. 2 & 3). The program segment including: a program segment for controlling receipt of an audio indication (Fig. 2, 205); a program segment for determining whether a received audio command is one of a plurality of recognized audio commands (Fig. 2, 210); a program segment for activating an image acquisition component upon determining the received audio command as recognized (Fig. 2,

210); a program segment for receiving a hand gesture from a user (Fig. 2, 240); a program segment for determining whether the hand gesture of the user is one of a plurality of recognized hand gestures (Fig. 2, 240); and a program segment for manipulating the display characteristic upon determining the received hand gesture as recognized (Fig. 2, 270), wherein the display characteristic is manipulated according to the audio command and the hand gesture.

The present claimed invention also relates to a video display device (Fig. 1, page 5, line 11 to page 6, line 2). The video display device including: a display configured to display a primary image and a picture-in-picture image (PIP) (Fig. 1, 110, page 5, line 11 to page 6, line 2); and a processor operatively coupled to the display (Fig. 1, 120, page 5, line 11 to page 6, line 2) and configured to receive a first video data stream for the primary image, to receive a second video data stream for the PIP (Fig. 1, page 5, line 11 to page 7, line 8), wherein the processor is configured to recognize an audio command is identified as an audio indication to change the PIP display characteristic (Fig. 2, 210), upon recognizing the audio command the processor activates an image acquisition component, wherein the image acquisition component is configured to recognize image information from the user related to manipulating the PIP display characteristic (Figs. 1-3, page 8, lines 1-13), the processor manipulates the PIP display characteristic according to the audio command and the image information (Figs. 1-3, page 9, line 14 to page 10, line 11).

The present claimed invention also relates to a program segment stored on a processor readable medium (page 15, lines 1-15) for manipulating a display characteristic of a picture-in-picture display (PIP) overlaying a primary display (Figs. 2 & 3). The program segment including: a program segment for determining whether a received audio command is one of a plurality of recognized audio commands (Fig. 2, 210); a program segment for activating an image acquisition component upon determining the received audio command as recognized (Fig.

2, 210); a program segment for receiving a hand gesture of the user in response to the activation of the image acquisition component (Fig. 2, 240); and a program segment for providing an indication to the user in response to the hand gesture not being identified as a hand gesture related to the received audio indication (Fig. 2, 250).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-18 and 20-24 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,999,214 to Inagaki (hereinafter Inagaki) in view of Pavlovic et al., "Integration of audio/video information for use in a human-computer intelligent interaction," Image processing, 1997 Proceedings IEEE, (hereinafter Pavlovic) in view of U.S. Patent No. 6,154,723 to Cox et al. (hereinafter Cox).

VII. ARGUMENT

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

A. Claims 1-18 and 20-24 are not properly rejected under 35 U.S.C. § 103(a) over Inagaki in view of Pavlovic and further in view of Cox.

1. Claim 1

recites, a "a processor...to recognize an audio command related to a PIP display characteristic, the processor, upon recognizing the audio command, activates an image acquisition component that is configured to recognize a user hand gesture related to manipulating the PIP display characteristic, the processor manipulates the PIP display characteristic according to the audio command and the hand gesture." (Emphasis added).

As pointed out in Appellant 's specification, page 3, lines 3-8: "In the art of computer vision there are known systems that respond to gestures of a user to control features of a given system but again these systems are difficult to manipulate and may erroneously detect gestures by users that may not be intended as a control gesture."

Appellant 's claimed invention provides the advantage of activating the image acquisition component after an audio command to do so. Specifically, this combination of the audio indication 142 followed by the gesture 144 helps prevent false activation of the system 100 in response to spurious background audio and gesture indications that may occur due to the users activity in and around the area where the system 100 is located (specification, page 8, lines 9-13). Therefore, Appellant's claimed invention recites a unique combination of features which provides, at least, the advantages of overcoming the deficiencies of the prior art, as noted above.

The MPEP 2143 requires to establish a *prima facie* case of obviousness -- three basic criteria must be met:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

This rejection fails on all three of the tests.

a. The combination of references does not teach or suggest all the claimed limitations

Appellant's claim 1 provides that the processor activates the image acquisition component after recognizing an audio command to do so. The image acquisition component is configured to recognize a user hand gesture related to manipulating the PIP display characteristic.

On page 4 of the final Office Action it is argued that: "Furthermore, it would have been obvious matter of design choice to choose whether to enter a voice command first, then a gesture command, or in opposite order, since it merely depends on the function being performed and the assignments of the commands. For example, if movement of the cursor is controlled by gesture commands and selection of a menu item is input by voice commands, then whether a voice command or a gesture command is needed first would depend on the current position of the cursor: gesture commands first if the user needs to move the cursor, but voice commands first if the user wants to select the current highlighted menu item (this reads on the limitation of "the processor is configured to receive the related gesture from the user in response to the receive audio command"). As evidence, Cox teaches a data inputting system for a computer using voice commands and gesture commands, wherein some voice commands trigger input from gesture commands (column 5 lines 10-19)."

Appellant respectfully disagrees that it is a simple design choice since Appellant recognized a problem and invented a solution to the problem. Appellant's specification itself teaches that image recognition of gestures was known; however, none of the references suggest activating the image acquisition component after recognizing an audio command to do so. The image acquisition component is configured to recognize a user hand gesture related to manipulating the PIP display characteristic.

The Office Action points to Cox, col. 5, lines 10-19, however Cox teaches a magnetic wand used inside a “CAVE” immersion environment.

In contrast, Appellant’s claim 1 clearly recites: “an image acquisition component that is configured to recognize a user hand gesture.” Cox does not suggest activating an image component to recognize a user hand gesture. Instead Cox teaches an audio command to activate certain wand functions such as “fly” as described in table 1 of Cox.

Furthermore, MPEP 2141.02 makes clear, in determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983).

In the final Office Action the Examiner only points out a difference and argues this difference is a simple design choice as evidenced by Cox. It is respectfully submitted that the invention as a whole has not been considered and the rejection is improperly based upon a distilling down of the invention to individual pieces without considering the invention as a whole. Cox teaches the need for a “wand” and an immersion environment; whereas, Appellant’s claimed invention recites: “a processor...to recognize an audio command related to a PIP display characteristic, the processor, upon recognizing the audio command, activates an image acquisition component that is configured to recognize a user hand gesture related to manipulating the PIP display characteristic, the processor manipulates the PIP display characteristic according to the audio command and the hand gesture” which is not suggested in the combination of references.

It is respectfully submitted the combination of references fails to teach each and every claimed feature.

b. there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

Even if all the limitation were taught in the combination of references, there is no motivation to modify or combine the teachings. It is argued in the Office Action that a simple design choice is required to arrive at the claimed invention as evidenced by Cox. The Office Action provides examples on page 4 where a voice command would navigate a menu whereas the gesture command would move the cursor; however, Appellant disagrees that this would lead one skilled in the art to Appellant's claimed invention. None of the references suggest the desirability for Appellant's claimed combination of features. The references merely disclose that sound and image recognition is known, but fail to provide any suggestion for Appellant's claimed features.

There is no reasoning provided in the Office Action as to why one skilled in the art would be motivated to combine Cox or a "simple design choice." In fact Cox leads one skilled in the art away from Appellant's claimed invention. For example, a designer faced with the problem of trying to minimize false recognitions of image indications for controlling a PIP for a display would not be motivated by the teachings of Cox where a "CAVE" immersion environment with a wand is required and a voice command may activate certain wand functions. In addition, if Appellant's claimed invention were a "simple design choice" then any combination of command/image recognition order would produce the same results, which clearly one skilled in

the art, using hindsight of Appellant's specification as a roadmap, understands would not achieve Appellant's desired results.

It is respectfully submitted that the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would not have suggested to those of ordinary skill in the art Appellant's claimed invention.

c. There no reasonable expectation of success.

In the final Office Action it is argued that Appellant's claimed features are a simple design choice as evidenced by Cox. In the Office Action, it is argued by the Examiner that any combination of audio or visual command would be equally capable of achieving the desired results depending on the function to be performed or the assignment of the command. However there is no suggestion anywhere that a particular order of commands would provide a predictable result achieved by Appellant's claimed invention.

It is argued in the Office Action that a simple design choice leads to Appellant's claimed invention. However, as pointed out in Appellant's specification and as noted above, without consideration of Appellant's specific claimed features spurious image recognitions will occur causing false commands.

Furthermore, considering Cox teaches a "wand" and immersion environments and sound commands activating the "wand" functions, Appellant contends there is not reasonable expectation of success.

In summary, the claimed invention describes a system wherein an image acquisition component is activated upon the system's recognition of an audio command. (Specification, p. 11, lines 8-18). By activation of the image acquisition component after the audio command, the claimed invention is able to reduce false activation of the system due to an inadvertent hand

gesture from the user. In addition, the present invention allows for conservation of system resources since the image acquisition component is activated upon recognizing the audio command. Thus, the system will not unnecessarily expend resources to monitor the user until the user activates the system using the audio command. Finally, the claimed invention relates to the acquisition of a user hand gesture as opposed to requiring the use of magnetically tracked wand as described in Cox.

It is respectfully submitted that Inagaki, Pavlovic and Cox fail to teach or suggest, either alone or in combination, the claim limitations recited in claim 1.

Appellant respectfully submits that, for at least the reasons stated above, claim 1 is not obvious over Inagaki in view of Pavlovic and in view of Cox, and request that the rejection of this claim be withdrawn.

2. Claim 11

Claim 11 is rejected using similar arguments as used in the rejection of claim 1 over Inagaki in view of Pavlovic and in view of Cox (see final Office Action of 08/23/2006, p. 7). Claim 11 recites a "...activating an image acquisition component upon determining the received audio command as recognized; receiving a hand gesture from a user..." Therefore, Appellant respectfully submits that claim 11 is allowable for at least the reasons discussed above with regard to claim 1.

3. Claim 15

The Examiner rejected claim 15 using similar arguments as used in the rejection of claim 1 over Inagaki in view of Pavlovic and in view of Cox (see final Office Action of 08/23/2006, p. 8). Claim 15 recites "...a program segment for activating an image acquisition component upon

determining the received audio command as recognized..." Therefore, Appellant respectfully submits that claim 15 is allowable for at least the reasons discussed above with regard to claim 1.

4. Claim 20

The Examiner rejected claim 20 using similar arguments as used in the rejection of claim 1 over Inagaki in view of Pavlovic and in view of Cox (see final Office Action of 08/23/2006, p. 8). Claim 15 recites "...wherein the processor is configured to recognize an audio commands is identified as an audio indication to change the PIP display characteristic, upon recognizing the audio command the processor activates an image acquisition component..." Therefore, Appellant respectfully submits that claim 20 is allowable for at least the reasons discussed above with regard to claim 1.

5. Claim 21

The Examiner rejected claim 21 using similar arguments as used in the rejection of claim 1 over Inagaki in view of Pavlovic and in view of Cox (see final Office Action of 08/23/2006, p. 8). Claim 21 recites "...a program segment for activating an image acquisition component upon determining the received audio command as recognized..." Therefore, Appellant respectfully submits that claim 21 is allowable for at least the reasons discussed above with regard to claim 1.

6. Dependent Claims 2-10 and 22

Claims 2-10 and 22 depend from, and therefore include all the limitations of claim 1. For at least the above stated reasons with regard to claim 1, it is hereby submitted that these claims are also allowable.

Each of these claims has further distinguishing features, for example, claim 2 recites: "the PIP display characteristic is a display size of the PIP." The Office Action argues this is shown in Inagaki, however nowhere could Appellant find where Inagaki teaches an image acquisition

component that is configured to recognize a user hand gesture related to manipulating a display size of the PIP. Inagaki merely teaches highlighting the image of the speaker and not manipulating the display size.

7. Dependent Claims 12-14 and 23

As claims 12-14 and 23 depend from, and therefore include all the limitations of claim 11, it is hereby submitted that these claims are also allowable for at least the above stated reasons with regard to claim 11. It is also submitted that these claims are also allowable because each of these claims include further distinguishing features.

8. Dependent Claims 16-18 and 24

As claims 16-18 and 24 depend from, and therefore include all the limitations of claim 15, it is hereby submitted that these claims are also allowable for at least the above stated reasons with regard to claim 15. It is also submitted that these claims are also allowable because each of these claims include further distinguishing features.

CONCLUSION

In light of the above, Appellant respectfully submits that the rejection of claims 1-18 and 20-24 is in error. The prior art references, whether alone or in combination, relied upon in the Final Office Action do not render obvious Appellant's claims 1-18 and 20-24. Thus, Appellant respectfully submits that the obviousness rejection is in error, legally and factually, and must be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

- 1.(previously presented): A video display device comprising:
 - a display configured to display a primary image and a picture-in-picture image (PIP) overlaying the primary image; and
 - a processor operatively coupled to the display and configured to receive a first video data stream for the primary image, to receive a second video data stream for the PIP, to recognize an audio command related to a PIP display characteristic, the processor, upon recognizing the audio command, activates an image acquisition component that is configured to recognize a user hand gesture related to manipulating the PIP display characteristic, the processor manipulates the PIP display characteristic according to the audio command and the hand gesture.
- 2.(previously presented): The video display device of Claim 1, wherein the PIP display characteristic is a display size of the PIP.
- 3.(previously presented): The video display device of Claim 1, comprising:
 - a microphone for receiving the audio command from the user.
- 4.(previously presented): The video display device of Claim 1, wherein the processor is configured to analyze audio information received from the user to identify when a PIP related audio command is intended by the user, and wherein the processor is configured to receive the related gesture from the user in response to the identified PIP related audio indication.

5.(previously presented): The video display device of Claim 1, wherein the processor is configured to analyze image information received from the user via the image acquisition component upon recognition of the audio command to identify the change in the PIP display characteristic that is expressed by the received gesture.

6.(original): The video display device of Claim 5, wherein the image information is contained in a sequence of images and wherein the processor is configured to analyze the sequence of images to determine the received gesture.

7.(original): The video display device of Claim 1, wherein the image information is contained in a sequence of images and wherein the processor is configured to determine the received gesture by analyzing the sequence of images and determining a trajectory of a hand of the user.

8.(original): The video display device of Claim 1, wherein the processor is configured to determine the received gesture by analyzing an image of the user and determining a posture of a hand of the user.

9.(original): The video display device of Claim 1, wherein the video display device is a television.

10.(previously presented): The video display device of Claim 1, wherein an image of the user contains the user gesture, the video display device comprising a camera for acquiring the image of the user.

11.(previously presented): A method of manipulating a display characteristic of a picture-in-picture display (PIP) overlaying a primary display, the method comprising:

receiving an audio command from a user;

determining whether the received audio command is one of a plurality of recognized audio commands;

activating an image acquisition component upon determining the received audio command as recognized;

receiving a hand gesture from a user;

determining whether the hand gesture of the user is one of a plurality of recognized hand gestures; and

manipulating the display characteristic upon determining the received hand gesture as recognized, wherein the display characteristic is manipulated according to the audio command and the hand gesture.

12.(previously presented): The method of Claim 11, wherein determining whether the gesture of the user is one of a plurality of recognized gestures comprises:

receiving a sequence of images; and

analyzing the sequence of images to determine the gesture.

13.(previously presented): The method of Claim 11, wherein determining whether the gesture of the user is one of a plurality of recognized gestures comprises:

receiving a sequence of images;

analyzing the sequence of images to determine a trajectory of a hand of the user; and
determining the gesture by the determined trajectory.

14.(previously presented): The method of Claim 11, wherein determining whether the gesture of the user is one of a plurality of recognized gestures comprises:

analyzing an image of the user to determine a posture of a hand of the user; and
determining the gesture by the determined posture.

15.(previously presented): A program segment stored on a processor readable medium for manipulating a display characteristic of a picture-in-picture display (PIP) overlaying a primary display, the program segment comprising:

a program segment for controlling receipt of an audio indication;
a program segment for determining whether a received audio command is one of a plurality of recognized audio commands;
a program segment for activating an image acquisition component upon determining the received audio command as recognized;
a program segment for receiving a hand gesture from a user;
a program segment for determining whether the hand gesture of the user is one of a plurality of recognized hand gestures; and
a program segment for manipulating the display characteristic upon determining the received hand gesture as recognized, wherein the display characteristic is manipulated according to the audio command and the hand gesture.

16.(previously presented): The program segment of Claim 15, wherein the program segment for determining whether the gesture of the user is one of a plurality of recognized gestures comprises:

a program segment for controlling receipt of a sequence of images in response to the received audio command; and

a program segment for analyzing the sequence of images to determine the gesture.

17.(previously presented): The program segment of Claim 15, wherein the program segment for determining whether the gesture of the user is one of a plurality of recognized gestures comprises:

a program segment for controlling receipt of a sequence of images;

a program segment for analyzing the sequence of images to determine a trajectory of a hand of the user; and

a program segment for determining the gesture by the determined trajectory.

18.(previously presented): The program segment of Claim 15, wherein the program segment for determining whether the gesture of the user is one of a plurality of recognized gestures comprises:

a program segment for analyzing an image of the user to determine a posture of a hand of the user; and

a program segment for determining the gesture by the determined posture.

19. (Canceled)

20.(previously presented): A video display device comprising:

a display configured to display a primary image and a picture-in-picture image (PIP);
and

a processor operatively coupled to the display and configured to receive a first video data stream for the primary image, to receive a second video data stream for the PIP, wherein the processor is configured to recognize an audio commands is identified as an audio indication to change the PIP display characteristic, upon recognizing the audio command the processor activates an image acquisition component, wherein the image acquisition component is configured to recognize image information from the user related to manipulating the PIP display characteristic, the processor manipulates the PIP display characteristic according to the audio command and the image information

21.(previously presented): A program segment stored on a processor readable medium for manipulating a display characteristic of a picture-in-picture display (PIP) overlaying a primary display, the program segment comprising:

a program segment for determining whether a received audio command is one of a plurality of recognized audio commands;

a program segment for activating an image acquisition component upon determining the received audio command as recognized;

a program segment for receiving a hand gesture of the user in response to the activation of the image acquisition component; and

a program segment for providing an indication to the user in response to the hand gesture not being identified as a hand gesture related to the received audio indication.

22.(previously presented): The video display device of Claim 1, wherein the image acquisition component is a camera.

23.(previously presented): The method of Claim 11, wherein the image acquisition component is a camera.

24.(previously presented): The program segment of Claim 15, wherein the image acquisition component is a camera.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by appellant in the appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any appeals or interferences related to the present application.